

Assessment of psychosocial risk factors with drug prescription data

M. FRIEDRICHS¹ W. BOEDEKER²

¹BKK Team Health, Rellinghauser Strasse 93, 45128 Essen, Germany

²BKK Bundesverband (Federal Association of Company Health Insurance Funds), Health Department, Kronprinzenstrasse 6, 45128 Essen, Germany;

Abstract

Work-related health monitoring often is done by making use of sickness absence data. However it is well known, that sickness absence serves as an indicator for a part of morbidity only, because treatment of a number of diseases does not include rest from work. In contrast, most diseases are treated pharmaceutically. Aim of this study therefore was to elaborate on the usefulness of drug prescription data for the assessment of psychosocial risk factors at work.

Data on drug prescriptions and visits to general practitioners (GP) from approximately 16500 employees were included in this study. Relative risks for different job types and work load with respect to the data source were calculated.

Results show, that low job control (e.g. monotony, repetitive tasks) is associated with an increased relative risk for drug prescription. This could be observed with respect to various classes of drugs as well as to various diseases (e.g. asthma, depressions). We conclude that drug prescription data can provide valuable information for the assessment of work-related health hazards.

Introduction

In recent years the use of sick leave data has become a common tool to assess associations between occupational exposures and morbidity. Nevertheless, in many diseases the incidence rates provided by sickness absence data underestimate the real occurrence of these diseases because rest from work is not in all cases an appropriate therapy. In contrast, medication is often a necessary treatment for a broader range of diseases. Therefore this study examines, whether drug prescription data can provide additional information on morbidity and the relatedness to occupational exposures.

Subjects and Methods

Drug prescription data stored at a German health insurance over the years 1997 to 1999 were analysed for a population of employees (11929 male, 4708 female) of the metal and electrical industry. In addition, data of visits to General Practitioners were available. A job-exposure matrix (JEM) with 65 workload items was set up by job titles in both industries. Workload and exposures were assessed by experts. Psychosocial risk factors were addressed by 27 items of the JEM. Special

attention was given to the construct of low job control as it has been shown as an important and consistent risk factor with respect to sickness absence. Job control furthermore is a dimension of the well known job-demand-control-model by Karasek et al. Job control in our study was quantified by a sum score across the items qualification, creativity, learning, manual skills, repetitive tasks, supervising tasks, group work, decision latitude, and given performance. This score was classified as very low, low, medium and high. High job control serving as a reference for relative risk calculation.

The drugs are classified by the Anatomical Therapeutic Chemical (ATC) system of the World Health Organization. In general the link between a drug and a specific disease is not unique. In order to examine specific diseases special subgroups – on 2nd, 3rd or higher ATC-levels – of drugs are considered (e.g. insulin prescription referring to diabetes). This was done for acute respiratory infections, diabetes mellitus, depressions, hypertension/coronary heart disease, and asthma bronchiale especially. The relative risks for job control were achieved by a Poisson-regression model.

Results

The comparison with visits to GP showed, that 40 % of the visits go together with sickness absence, while over 80 % go with drug prescriptions.

Table 1 shows the results for job control for all prescriptions and the five most important ATC-main groups. Table 2 shows the corresponding results for the diagnosis-related ATC-Subgroups.

Table 1: Relative Risks for job control and ATC-main groups

	Prescriptions (n)	Crude			Adjusted (sex, age)		
		RR	95 % CI		RR	95 % CI	
All Prescriptions							
Very Low	19498	1.54	1.40	1.71	1.49	1.35	1.64
Low	108581	1.47	1.34	1.62	1.41	1.29	1.55
Medium	16009	1.30	1.18	1.45	1.36	1.23	1.51
High	3700	1.00	1.00	1.00	1.00	1.00	1.00
ATC A: Alimentary Tract and Metabolism							
Very Low	2636	1.49	1.29	1.72	1.42	1.23	1.64
Low	12979	1.25	1.09	1.44	1.20	1.05	1.38
Medium	2024	1.18	1.01	1.37	1.21	1.04	1.41
High	519	1.00	1.00	1.00	1.00	1.00	1.00
ATC C: Cardiovascular System							
Very Low	2507	2.32	1.90	2.82	1.64	1.37	1.97
Low	13031	2.06	1.71	2.49	1.73	1.45	2.05
Medium	1989	1.89	1.55	2.31	1.61	1.34	1.93
High	317	1.00	1.00	1.00	1.00	1.00	1.00

ATC M: Musculo-Skeletal System							
Very Low	2663	2.26	1.95	2.63	1.94	1.67	2.25
Low	11187	1.63	1.41	1.88	1.52	1.32	1.75
Medium	1923	1.68	1.44	1.96	1.55	1.33	1.81
High	345	1.00	1.00	1.00	1.00	1.00	1.00
ATC N: Nervous System							
Very Low	2027	1.32	1.13	1.54	1.21	1.04	1.41
Low	11343	1.26	1.09	1.46	1.20	1.04	1.38
Medium	1795	1.20	1.03	1.40	1.19	1.01	1.38
High	451	1.00	1.00	1.00	1.00	1.00	1.00
ATC R: Respiratory System							
Very Low	3064	1.31	1.14	1.50	1.34	1.17	1.53
Low	18458	1.35	1.19	1.53	1.34	1.18	1.52
Medium	2969	1.30	1.14	1.49	1.34	1.17	1.54
High	686	1.00	1.00	1.00	1.00	1.00	1.00

Table 2: Relative Risks for job control and disease-related ATC-Subgroups

	Prescrip- tions (n)	Crude			Adjusted (sex, age)		
		RR	95 % CI		RR	95 % CI	
Acute Respiratory Infections							
Very Low	2098	1.31	1.14	1.49	1.39	1.22	1.58
Low	12472	1.33	1.18	1.50	1.33	1.18	1.51
Medium	2067	1.32	1.16	1.51	1.38	1.21	1.58
High	471	1.00	1.00	1.00	1.00	1.00	1.00
Asthma bronchiale							
Very Low	694	2.08	1.61	2.68	1.73	1.35	2.23
Low	3928	2.01	1.58	2.56	1.86	1.47	2.36
Medium	572	1.76	1.36	2.28	1.62	1.26	2.10
High	98	1.00	1.00	1.00	1.00	1.00	1.00
Depressions							
Very Low	210	1.54	1.21	1.95	1.43	1.13	1.80
Low	1143	1.43	1.15	1.79	1.38	1.11	1.71
Medium	185	1.39	1.10	1.77	1.48	1.17	1.88
High	40	1.00	1.00	1.00	1.00	1.00	1.00
Diabetes mellitus							
Very Low	399	2.05	1.62	2.60	1.30	1.04	1.62
Low	1519	1.34	1.07	1.67	1.08	0.87	1.33
Medium	259	1.37	1.07	1.75	0.99	0.78	1.24
High	57	1.00	1.00	1.00	1.00	1.00	1.00
Hypertension and Coronary heart disease							
Very Low	1959	2.35	1.90	2.91	1.58	1.30	1.91
Low	9960	2.05	1.67	2.51	1.67	1.39	2.00
Medium	1566	1.93	1.56	2.40	1.59	1.31	1.93
High	244	1.00	1.00	1.00	1.00	1.00	1.00

Low job control shows clear relations to all computed ATC-Groups: the lower the control the higher the risk of a prescription. Highest influences are seen with drugs affecting the musculo-skeletal and the cardiovascular system in ATC-mean groups and with drugs against asthma or hypertension/coronary heart disease.

Conclusion

Drug prescription data prove as a suitable tool in assessing work related health hazards and as a valuable supplement to sickness absence data providing a more detailed picture of morbidity and its work related parts. The main problem is the change in perspective from diagnosis to locations of effect or therapeutic intentions.